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ABSTRACT

Given the recent focus on patient responsibility for health status and improvement, it is important to understand the dynamics involved in patient compliance to treatment regimens. The determinants of patching compliance among 30 pediatric amblyopia patients and their parents were investigated by means of parent, patient, and physician questionnaires and interviews and by some objective observations made at subsequent appointments. The general categories of variables tested were features of the disease, features of the treatment regimen, parent-clinician interaction, parent-child characteristics, family characteristics, and appointment keeping. Appointment keeping, parent satisfaction, and weeks of previous patching appeared as the most significant variables in predicting patient compliance. They did not, however, completely explain the behavior. Features of the treatment not only helped determine compliance, but were determined by it as well. Parent satisfaction and attitude toward the child were linked to improved compliance and are areas that can be manipulated to enhance compliance. But these two variables are also influenced by factors such as life-circumstances and sentiments which are not amenable to intervention. (TW)

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DETERMINANTS OF COMPLIANCE AMONG PEDIATRIC AMBLYOPIA PATIENTS*

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Key Concepts: Amblyopia, Compliance, Health Care, Pediatrics

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DETERMINANTS OF COMPLIANCE AMONG PEDIATRIC AMBLYOPIA PATIENTS*

ABSTRACT

The determinants of patching compliance among 30 pediatric amblyopia patients and their parents were investigated. Significant relationships were found between features of the treatment regimen and adherence to the patching regimen. Not keeping an appointment, being in the program for an extended period of time, and prescribing more rather than less daily patching hours were all associated with lower rates of compliance. In addition, parent satisfaction with the physician and parent attitude toward the amblyopic child emerged as important determinants of compliance which would be amenable to manipulation and intervention.

Introduction

The treatment of medical problems has traditionally been primarily the responsibility of medical professionals. However, during past decades an increase in chronic illnesses has led to greater patient involvement in their own health care. This focus on patient responsibility necessitates understanding of motivating and facilitating factors in patient compliance to the treatment regimen prescribed by the physician.

This research project investigated the determinants of patient compliance to ocular occlusion therapy in pediatric amblyopia patients an area in which to date no studies have been reported.

The treatment of this condition requires total patching of the dominant eye and a committment of both parent and child to the patching regimen. The responsibility for treatment success is equally shared by the parent, patient, and physician and is largely dependent upon the degree of adherence to the therapy.

Amblyopia

Amblyopia refers to defective vision resulting from failure of development of vision in a child due to interference with use of the eye during the critical period when cortical visual connections normally become fixed (Parr, 1976). Amblyopia does not occur after the age of seven and can be treated only in childhood. If left untreated, it lasts for life, even if the sight in the other eye is lost. The prevalence of this disease in all children is about five percent. The degree of visual defect is largely determined by the age of onset: the younger the child when normal seeing is interfered with, the more profound will be the loss of vision. The likelihood of recovery of vision with treatment is largely determined by the duration; the longer the amblyopia has been present, the less effective the treatment will be (Parr, 1976).

Treatment for amblyopia is based on the simple idea of forcing the child to use his/her amblyopic eye. All that is necessary is correction with glasses of any significant refractive errors and total light-tight, occlusion (patching) of the normally used eye. The duration of the treatment depends on the depth of the amblyopia. With prompt treatment a few weeks may suffice, with long delayed treatment, more than one year may be needed. According to Raab (1982) if there is no improvement after three months of conscientious occlusion, there will probably not be any thereafter.

Purpose and Plan

The main goal of this investigation was to construct a comprehensive framework for understanding the dynamics involved in determining adherence to an occlusion regimen in amblyopia patients. In order to develop this framework, it was necessary to systematize the various determinants of patching compliance and to provide an explanation of the variability in patching behavior. Thus, the primary purpose of this study was to identify variables associated with adherence to ocular occlusion (patching) regimen The second purpose was to elucidate the interrelationships among the select determinants and their effect upon adherence to patching.

Since no literature exists which has identified the determinants of patching compliance, an examination of more general determinants of compliance seemed warranted. Zisook (1980) has identified categories of variables which contribute to noncompliant behavior and has grouped them under the following four major categories: features of the disease; features of the treatment regimen; patient-physician interaction factors; and patient characteristics. The majority of factors associated with compliance can be classified under one of these headings. In the case of pediatric compliance, an additional set of factors must be added. Compliance among children is often dependent upon the behavior and attitudes of their "responsible other." This control over the child's health behaviors has been well documented for actions such as obtaining immunizations (Tyroler, 1965), taking medications (Becker, 1974), and dental care (Freeman, 1965). In addition to the influence of the responsible other, features of the entire family of the pediatric patient have been associated with compliance (Becker, 1972).

For these reasons, a category which includes family characteristics and family/patient-child interactions is critical for a complete understanding.

Those variables which were particularly pertinent to this study are listed in Table I along with their respective assessment instrument.

Insert Table 1 About Here

These variables do not exhaust the multitude of possible factors but represent a summary of those noted in a majority of the most recent, relevant investigations. It is important to bear in mind that although each of these determinants may have some relationship to compliance, there are many factors impinging on the compliance outcome which may either negate or enhance the interpretability of this relationship. Shope (1981) states that a breakdown of factors serves at least two purposes. It clearly demonstrates that compliance is not simply determined or explained, and it demarcates some of the components of the compliance process which may serve as targets for compliance-improving strategies.

Method

Subjects

Parents of thirty pediatric amblyopia patients ages one to twelve who attended the motility clinic of the Eye and Ear infirmary of a major university during a four month period were selected for the study. Selection was limited to those patients who were currently patching or beginning a patching program (ocular occlusion) and whose condition was uncomplicated by other eye diseases. All

Table 1

Summary of the Results of the Variable Selection Process and the Corresponding Assessment Instruments

Variable Related to Patient Compliance	Assessment Instrument
1) Features of the Disease	
a) Acuity of the amblyopic eye	H.O.T.V., E-Game, Snellen Letter Chart
b) Congenital or Acquired	Physician Questionnaire: Age of Onset
c) Presence of a cosmetic condition	Physician Questionnaire: Noticeable ocular imbalance
2) Features of the Treatment Regimen	
a) Duration of the patching regimen	Physician Questionnaire: Number of weeks of previous patching
b) Frequency of patching	Physician Questionnaire: Number of daily patching hours prescribed by the physician
3) Parent-Clinician Interaction	
a) Satisfaction	Satisfaction Scale (DiMatteo, 1980)
b) Communication	Communication Scale (DiMatteo, 1980)
c) Expectations	Learning the Diagnosis/ Progress of the Patient (Korsch, 1968)

4) Parent-Child Characteristics	
a) Demographic Data (parent education, public aid status, age and sex of child, number of children at home, one- or two-parent household)	Parent Interview Questionnaire
b) Locus of Control	Health Locus of Control Scale (Lau, 1981)
c) Health Beliefs	Health Belief Indices (Becker, 1977)
5) Family Characteristics	
a) Family Functioning	Family Functioning Index (Pless and Satterwhite, 1973) Parent Judgment Regarding a Particular Child Scale (Itkin, 1952)
6) Appointment Keeping	Attendance at the subsequent appointment

parents who were asked to participate did so and signed permission forms prior to their scheduled appointment.

Procedure

The data collection was conducted in the following manner. Parents of amblyopic subjects were interviewed and asked to complete questionnaires at three different times. During the first appointment five instruments were administered: Health Locus of Control Scale; Health Belief Indices; Parent Judgment Regarding a Particular Child Scale; Parent Interview Questionnaire; and the Family Functioning Index. (Note: for some patients, Appointment I represented the initial appointment while for others, it represented different points in time along a continuing regimen).

During Appointment I, the physician assessed the features of the disease and treatment regimen and completed the Physician Questionnaire. This included: administering the appropriate acuity instrument; determining if the amblyopia was congential or acquired; noting the cosmetic condition of the eye; and noting the duration and frequency of the regimen.

Immediately following this appointment, the parent completed the Satisfaction and Communication Scales. Also at this time, the parent received the box of ocular patches and instructions to record on the chart attached to each box the total number of hours that each patch was used.

The time interval between the first and second appointment varied (from one to twelve weeks) depending upon the depth of the amblyopia and the age of the patient. Parents were instructed to return the Patch Box at the time of their next appointment. During this time, data regarding whether or not the patient had

kept the previous appointment (appointment keeping) was recorded. Also recorded at this time were Patch Box Data, Parent Estimate (in cases where the patch box information was not available) or in the remaining cases Verbal Patch Usage.

Measures of Compliance

The three instruments which measured patching compliance were: Patch Box Data; Parent Estimate; and Verbal Patch Usage. The most appropriate method for measuring patching compliance was determined by the type of data available and the assumed accuracy of that data. A parent who returned the patch box with the chart information, had patching compliance assessed by Patch Box Data. A parent who failed to return the box had patching compliance assessed by either Parent Estimate (when this estimate was less than 25%), or by Verbal Patch Usage, in the remaining cases. Every method thus yielded a single measure of patching compliance represented as a percent of the total prescribed patching hours. These three methods are mutually exclusive and exhaustive.

Patch box data. The most objective of the three measures was Patch Box Data. This instrument was designed to utilize the strengths of both observational techniques and pill count measures. Observational methods according to Hersen (1976), provide an objective assessment of compliance and are clearly superior to less direct methods. Recording patch usage requires parents to observe and record the number of hours that each patch was worn by the patient. The patch box contains 20 ocular occlusion patches (either Coverlet or Opticlude) and the following directions attached to the box:

> Please record, on the box, the total number of hours that each patch is used. If the patch is used for only one hour and is never used again, record one hour on the box. If you use this particular patch again for an additional number of hours, please add the total number of hours together for that patch. Please bring your box with you to your next visit. We will return the remaining patches to you. If your supply of patches runs out, please record that date on the box but still bring the empty box with you.

This data thus provided an estimate of the average number of hours per day that patching actually occured.

Parent estimate. The Parent Estimate of Patching compliance was also utilized in specific cases to measure hours of patching. The parents' estimate of the average number of daily hours patched was recorded on the Parent Interview Questionnaire II. This estimate was purposefully preceded by a list of problems (e.g., not sticking, skin irritation) typically associated with the patches, and required parents to identify those problems they had similarly encountered. This was done in an effort to enhance the veracity and thus the validity of the parent estimates by implying that non-compliance is due more to inherent problems with the patches themselves rather than with any deficiency on the parents' part.

Although parents tend to overestimate their children's compliance, the accuracy of these estimates is further enhanced when parents admit to low or noncompliance. Gordis (1979) states that there is little evidence to suggest that complying patients misrepresent themselves as noncompliers, nor is there evidence that those who

profess noncompliance are lying. In the case of major compliance defaults, Park and Lipman (1964) found that parent estimates tended to correspond to pill counts. For this reason, parental estimate of patching compliance was accepted as reasonably reliable when major compliance failures were reported.

Verbal usage. The least objective of the three measures was Verbal Patch Usage because of its reliance on recall of data. This method was designed to question the parents regarding their recall of the number of patches remaining in the patch box in instances where the patch box was not returned. The parents were also asked to estimate the number of hours that the average patch lasted. In doing so, an estimate of the average number of hours per day of patching was made. Despite its limitation of relying on recall data, Verbal Patch Usage would appear to be at least as accurate as patient estimates with the added advantage of obscuring the true purpose of the study. In addition, this method was only used when the box was not returned and subsequently when the parent estimated high patching compliance.

Analysis and Discussion of Results

Using stepwise regression analysis, those independent variables which met the entry criteria ($p < .2$) were entered into the regression equation in order of their contribution to explained variance: appointment keeping, parent satisfaction, present hours of patching, weeks of previous patching, attitude toward the child, and locus of control. Table 2 summarized the results of the regression.

Insert Table 2 About Here

Table 2

Summary Table for Stepwise Regression

Variable	Multiple R	R Square	Adjusted R Square	F	Significance of F	R Square Change	F of R Square Change	Significance of R Square Change
Appointment Keeping	.670	.449	.429	22.80	.000	.449	22.80	.000**
Parent Satisfaction	.725	.526	.491	14.97	.000	.077	4.38	.046*
Present Hours of Patching	.760	.577	.528	11.81	.000	.051	3.14	.088
Weeks of Previous Patching	.811	.657	.603	11.99	.000	.081	5.88	.023*
Attitude Toward the Child	.829	.687	.621	10.51	.000	.029	2.23	.148
Locus of Control	.846	.715	.641	9.63	.000	.029	2.31	.142

* $p < .05$
** $p < .01$

Only three of the six factors listed made significant contributions ($p < .05$). Appointment keeping had a high zero order correlation (multiple R .670, $p < .000$) with the dependent variable and explained the greatest amount of variance in patching compliance. When the variable, appointment keeping was held constant, parent satisfaction made the greatest increment to R^2 (.077, $p < .05$). When both appointment keeping and satisfaction were taken into consideration, weeks of previous patching made the next greatest increment to R^2 (.081, $p < .05$). When all previously entered variables were held constant, increments to the variance left unexplained for the remaining variables were as follows: present hours of patching (.051), attitude toward the child (.029), and locus of control (.029).

The total variance accounted for by all six factors in the equation was .72 ($p < .00$) or 72%. The percent contributions for the variables in order of their entry into the equation were: appointment keeping (45%); parent satisfaction (8%); present hours (5%); weeks of previous patching(8%); attitude (3%); and locus of control (3%).

The relative importance of the independent variables in influencing patching compliance is indicated by their beta weights which were then used to determine the following standardized regression equation:

$$Y = -0.51\ X_1\ \text{(Appointment keeping)} - 0.34\ X_2\ \text{(Present hours of patching)} - 0.31\ X_3\ \text{(Weeks of previous patching)} + 0.21\ X_4\ \text{(Parent satisfaction)} + 0.26\ X_5\ \text{(Attitude toward the child)} + 0.19\ X_6\ \text{(Locus of Control).}$$

These beta weights represent the standard deviation change in the dependent variable (patching compliance) associated with a one standard deviation increase in the independent variable. For example, with the remaining variables held constant, a one standard deviation increase in appointment keeping (i.e., not keeping the appointment) is associated with a -.51 ($p < .01$) standard deviation change in patching compliance. Converting -.51 into its unstandardized form (i.e., -35.53), it would appear that patients who kept their appointments were, on the average, complying 36% less than those keeping appointments. It was highly likely then that parents and patients who failed to keep their appointment were either not patching at all or were patching too little to benefit from the regimen.

Similarly, a considerable increase (one full standard deviation) in present hours of patching results in a -.34 ($p < .01$) standard deviation decrease in patching compliance. In other words, full-time patchers had a lower rate of compliance than those who were prescribed less hours of patching (e.g. part-time). And finally, a one standard deviation increase in weeks of previous patching was associated with a .31 ($p < .01$) standard deviation decrease in patching compliance. That is patients who had been patching for longer periods of time (e.g. 200 weeks) tended to have lower rates of compliance those who had not been patching as long (e.g. 5 weeks). Since both present (prescribed) hours and previous weeks of patching have negative beta weights, they impact on compliance in a negative direction.

In contrast, for the other three factors, considerable increases (one standard deviation) in parent satisfaction, attitude toward the child, and locus of control elicited the following modest increases

in patching compliance in a positive direction: .21; .26; .19. It seems that the effect of keeping an appointment on patching compliance was about two times that of parent satisfaction (.51/.21=2.4), attitude toward the child (.51/.26=2.0), and locus of control (.51/.19=2.7).

The features of the treatment regimen are powerful predictors of patching compliance. They do not however, completely explain the behavior. Appointment keeping was measured after assessment of patching compliance and did not necessarily determine it. It is more likely that compliance and appointment keeping share a common underlying construct which may better explain both behaviors. Similarly, "number of weeks of previous patching" could be partially the result of poor compliance since patients who do patch consistently are likely to improve and terminate the regimen. On the other hand, some patients who currently report non-adherence may be those who have been on the patching regimen for a longer period of time primarily as a result of this noncompliance. Finally, the prescribed (present) hours of patching may also be at least partially determined by poor compliance, which may result in lack of improvement and an increase in recommended hours of patching.

It is apparent that these features of the treatment not only help determine compliance but are determined by it as well. In addition, number of appointments, weeks of patching, and hours of patching are also at least partially determined by the depth of the amblyopia and the age of the child, both of which are considered static characteristics. For these reasons then, the features of the treatment regimen are not highly amenable to manipulation and would

therefore not be fruitful targets for compliance-improving strategies and interventions.

Parent satisfaction was the second most important variable in explaining patching behavior. Its influence, however, was considerably reduced when other patient and family variables were taken into account. Factors which emerged as being high to moderately associated with parent satisfaction are listed in Table 3 and include: a high quality of communication between

Insert Table 3 About Here

parent and physician ($r = .840$, $p < .000$); having a positive attitude toward the child ($r = .439$, $p < .05$); locus of control (internal) ($r = -.299$); having a spouse at home ($r = .221$); and severity of the amblyopia ($r = .221$). It would appear then that parent satisfaction is multidimensional in nature and is influenced by numerous factors both general and specific. Ware's (1977) report that patient satisfaction ratings tend to be most directly related to general life outlook and economic sentiment as well as to factors inherent in the patient-physician relationship lends support to the results of this study. The direction of causality in these relationships is not known and there are probably plausible arguments for effects in both directions.

This is not to say, however, that the variable, parent satisfaction, is unimportant. On the contrary, it does indeed directly influence patching compliance. The point to be made is that parent satisfaction, or more specifically, parent satisfaction with the physician encounter, may not be entirely determined by the parent-physician relationship.

Table 3

Pearson r Correlations Between
Select Variable

Variables	Parent Satisfaction	Attitude Toward Child
Communication	.840**	.208
Locus of Control	-.299	-.381*
Number of parents in Household (Spouse at Home)	-.221	-.217
Severity	.221	-.048
Parent Education	-.109	.451**
Public Aid	.079	.654**
Attitude Toward the Child	.439*	1.000

* $p < .05$
** $p < .01$

It may be equally important to examine those background factors which influence general satisfaction of patients. This would in effect require the gathering of data related to the following variables; the degree to which parents perceive that they have control over their child's health; the quality of the parent-child relationship; the support system that a parent has at home; and the parent's economic conditions and general life sentiment. Parental attitude toward the amblyopic child (e.g., getting along with the child, and deriving satisfaction and enjoyment from the child) was also related to patching compliance. Although this variable was not significant, its beta weight was significant at .06, thus implying a strong relationship despite its failure to reach .05. A mother who feels that she gets along well with her child and derives satisfaction from caring for him/her is more likely to adhere to a patching regimen that is a mother who harbors more negative feelings toward her child. The fact that the mother's attitude is an important determinant of pediatric compliance is not surprising. However, the fact that this attitude plays a more important role in influencing compliance than do demographic factors, disease features, health beliefs, and family functioning in general, is a tribute to the importance of the mother-child relationship in pediatric health care.

As indicated, the parent's attitude toward the child is a good predictor of patching compliance. However, in order to fully understand the construct, attitude toward the child, it is necessary to examine its relationships together with other relevant variables (see Table 3). In this way, an explanatory framework for studying pediatric health care can begin to develop.

One particularly pertinent variable, parent education, was only weakly correlated with the dependent variable, however, it was significantly related to attitude toward the child (.451, $p < .01$). In other words, more years of schooling was positively associated with a more positive attitude and accounted for a significant portion of the variance. This finding is not totally surprising since increased education typically results in the acquisition of life skills such as child care, health care, and interpersonal skills. These acquired skills would therefore tend to enhance the overall mother-child relationship. If this is the case, then parent education may be a viable approach to enhancing not only patching but pediatric compliance in general.

A positive attitude was also highly related to not being on public aid (.654, $p < .01$), and having a spouse at home (two-parent household), (-.217). Both of these variables could be argued to be at least indirectly related to the parent's economic sentiment. Support of this view is provided by Ware (1977) who feels that these sentiments color the way people look at life in general. It would not be unreasonable to presume then that a poor life condition could affect the way parents feel about their children, and in turn, help determine patching noncompliance.

Although locus of control beliefs among parents were not associated with patching compliance, they were related to parent satisfaction ($r = -.299$). Parents who had an internal locus of control were more likely to report satisfaction with their physican than were parents with external locus of control. Although this is not to imply causality, it is feasible that believing in one's control of the environment (and especially their child's health)

could result in greater satisfaction with physicians and with life in general.

Summary

In summary, the majority of the patching correlates investigated in this study did not make significant contributions to patching compliance. Furthermore, a proportion of the significant variables were stable in nature and are therefore not amenable to manipulation and intervention. Of the remaining variables, parent satisfaction and attitude toward the child do offer promise for enhancing compliant behavior. It must be noted however, that these two variables are not simply determined but are influenced by features of the parent-physician interaction as well as by life-circumstances and sentiments.

References

Becker, M.H. Motivations as predictors of health behavior. Health Services Reports, 1972, 87, 852-861.

Becker, R.B., Drachman, R.M., & Kirscht, J.P. A new approach to explaining sick-role behavior in low income populations. American Journal of Public Health, 1974, 64, 205-216.

Becker, H.B., Maiman, L.A., Kirscht, J.P., Haefner, D.P., and Drachman, R.H. A test of the Health Belief Model in obesity. Journal of Health and Social Behavior, 1977, 18, 348-366.

DiMatteo, M.R. The significance of patients' perceptions of physician conduct. Journal of Community Health, 1980, 6 (1), 18-34.

Freeman, H.E. and Lambert, C. Preventive dental behavior of urban mothers. Journal of Health and Human Behavior, 1965, 6, 141-147.

Gordis, L. Conceptual and methodologic problems in measuring patient compliance. In Hayes, R.R., Taylor, D.W., and & Sachet, D.L. (Eds.), Compliance in Health Care. Baltimore, Johns Hopkins University Press, 1979.

Hersen, M. Single-Case Experimental Designs: Strategies for Studying Behavior Change. New York: Pergamon, 1976.

Itkin, W. Some relationships betwen intra-family attitudes and prenatal attitudes toward children. Journal of Genetic Psychology, 1952, 80, 221-252.

Korsch, B.M., Gozzi, E.K., and Francis, V. Gaps in doctor-patient communication. Pediatrics, 1968, 42, 855-871.

Lau, R.R. & Ware, J.F. Refinements in the measurement of health-specific locus-of-control beliefs. Medical Care, 1981, 19 (11), 1147-1158.

Park, L.C. and Lipman, R.S. A comparison of patient dosage deviation reports with pill counts. Psychopharmacologia, 1964, 6, 299-302.

Parr, John. Introduction to Ophthalmology, Oxford: Oxford University Press, 1976.

Pless, I.B., & Satterwhite, B. A measure of family functioning and its application. Social Science in Medicine, 1973, 7, 613-621.

Raab, E.L. Amblyopia, In H.S. Metz (ed.), Pediatric Ophthalmology, Garden City, New York: Medical Examination Publishing Co., Inc., 1982.

Shope.J.T. Medication Compliance. Symposium on Progress in Drug Therapy in Drug Therapy for Children, 1981, 5-21.

Tyroler, H. Patterns of preventive health behavior in populations. Journal of Health and Human Behavior, 1965, 6, 128-140.

Ware, J.E. Some issues in the Measurement of Patient Satisfaction with Health Care Services. Carbondale, Illinois: Southern Illinois University School of Medicine, 1977.

Zisook, S. Medical noncompliance. International Journal of Psychiatry, 1980-81, 10 (4), 291-303.